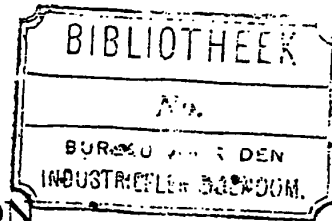


1 JUL 1923



## PATENT SPECIFICATION

Application Date: Dec. 11, 1922. No. 33,739/22. **199,672**

Complete Accepted: June 28, 1923.

## COMPLETE SPECIFICATION.

## New or Improved Method of or Means for Securing Seating Rings to Valves or Valve Bodies.

We, ROBERT ARNOLD BLAKEBOROUGH, of 199, High Holborn, London, W.C. 1, and HARRY TART, of Woodhouse Works, Brighouse, Yorkshire, both British subjects, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

10 The invention relates to the securing of seating rings to valves or valve bodies, and has for its object to provide improved means for effecting this of the type wherein the use of keeper rings, bolts, 15 screws, clamps or other fastenings is dispensed with.

According to our invention the face of the valve or valve body to which the ring is to be secured is made with an upstanding or projecting annular flange, the inner side of which is at right angles to the face, that is to say parallel to the axis of the seat opening or of the valve. At a suitable distance from this flange 25 and on the inner side of same, we form a second projecting annular flange or rib of relatively narrow width. The seating ring is preferably made, on its outer periphery, with a shoulder, disposed at the appropriate point in the depth of the ring which will permit said shoulder to rest on the face of the outer flange when the ring is placed in position, an extra width of seat face is thus 30 obtained.

The inner side of the ring is formed with an inclined or conical annular surface and when the ring has been positioned within the outer flange referred to, the inner rib or flange is rolled or expanded outwardly over this inclined surface and holds the ring tightly in position.

We are aware that it has been proposed to secure a seating ring by forming the seat opening with an open-sided recess having a countersunk portion into

which the end portion of a flanged extension of the seating ring is forced by radial pressure, and we are also aware 50 that valve facings and seatings have been secured by a tongue-and-groove construction wherein a lip on the body has been turned over a projecting annulus on the facing or seating in somewhat 55 the same manner as we propose. In our case, however, the portion  $a^3$  which secures the seating ring is made in the form of a distinct annular rib or flange extending up from the face against 60 which the seating ring is to be secured. The act of securing the ring is thus more easily performed and a better holding effect is obtained.

The nature of the invention will be 65 more clearly understood by referring to the accompanying drawing in which

Fig. 1 shews a section of the seating ring, detached;

Fig. 2 shews a section of the valve 70 face, or the seating face on the body, to which the ring is to be secured, and before application of said ring; and

Fig. 3 shews the ring applied and 75 secured in position.

In the drawing  $a$  represents a face to which it is desired to apply a seating ring, either on a valve or on a valve body.

According to the invention we provide 80 the face with a projecting annular flange  $a^1$ , the inner side  $a^2$  of which is at right angles to the part  $a$ .

At a suitable distance from this outer flange  $a^1$ , and on the inner side thereof, 85 we provide a second flange or rib  $a^3$  of relatively narrow width.

The seating ring  $b$  is preferably formed on its outer periphery with a shoulder  $b^1$  adapted, when the ring is applied, to 90 rest upon the outer face of the flange  $a^1$ .

The inner side of the ring is made, as shewn, with a portion  $b^2$  at right angles to its face and with an inclined

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annular surface  $b^3$ , over which the rib or flange  $a^3$  is rolled or spread as shewn in Fig. 3, to secure the ring in position.

The external diameter of that portion 5 of the ring which fits within the flange  $a^1$  is preferably made very slightly larger than the internal diameter of such flange, so that pressure is requisite to force the ring into position. To facilitate the entry of the ring, it may have a slight lead formed at its entering edge, 10 as indicated at  $b^4$  in Figure 1.

The tight fit of the ring within the 15 outer supporting flange, coupled with the anchorage afforded by the rolling down of the flange or rib  $a^3$  on to the inclined face  $b^3$ , results in the ring being immovably gripped to the valve or valve body, and no separate keeper ring or 20 bolts, clamps, or other securing means are required.

In the case of a valve intended for controlling the flow of steam or high 25 temperature fluids, it is desirable that the seating ring be composed of a metal or alloy having the same, or approximately the same, co-efficient of expansion as the metal of which the valve or valve body is composed, so as to avoid 30 any possible loosening of the ring through unequal expansions and contractions. In the case of a valve intended

for low temperature duty, such for instance as a sluice valve for controlling the flow of water in a pipe line, this question of expansion and contraction does not arise, and the seating ring may be composed of any suitable metal or alloy.

Although we have described the supporting flange as being on the outer side of the ring and the locking or holding down rib or flange on the inner side, it is obvious that these positions may be reversed.

The outer supporting flange and the inner locking rib need not in all cases be continuous, but it is preferable that they be so formed.

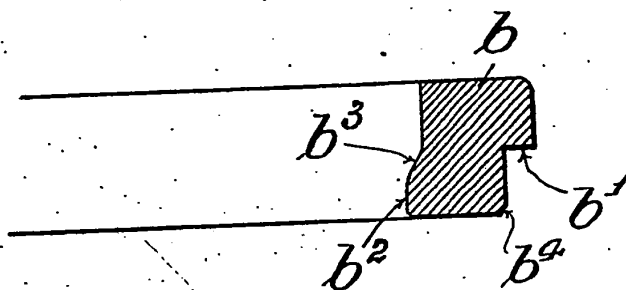
Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

The improved means for securing a seating ring to a valve or valve body, as herein described with reference to, and as illustrated by, the accompanying drawing.

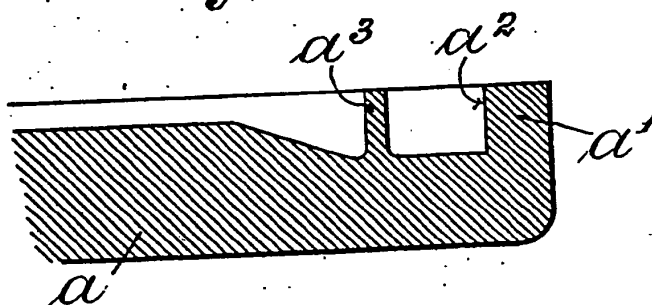
Dated this 9th day of December, 1922.

BARRON & LEWIN,  
Station Street Buildings, Huddersfield,  
Agents for the Applicants.

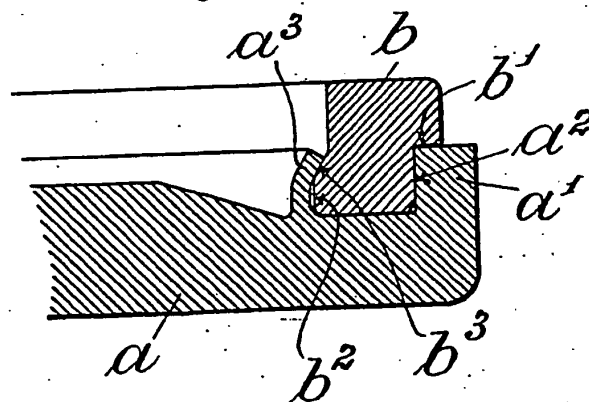
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



[This Drawing is a full-size reproduction of the Original.]

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